

Golf Conversion with EGA or CGA Monitor

Document Part #: 040-0082-01

This document describes the steps for using an existing EGA or CGA monitor when converting an old golf cabinet using the EA SPORTS™ PGA TOUR® Golf Conversion Kit. This document assumes that you are also performing the conversion procedures described in the *Conversion Kit Instructions* document, Part # 040-0012-02.

1. Components

Description	Qty	Part Number
Cable, 37-Pin M-F 6Ft Cable	1	ES1451
Cable, VGA M-M 6Ft	1	V-0606
Universal Video Converter (UVC)	1	96-0583-00
Cable, PC Y-Power	1	PGAK-FLT-3500-08
Cable, UVC to Jamma Converter. Board	1	115-0018-01
PCB Plastic Feet Kit	1	49-1019-00

2. Tools Required

- Screwdriver with assorted Torx® Security and Phillips bits
- ESD-Protective Grounding Wrist Strap

3. Primary Steps

1. Refer to *Conversion Kit Instructions* (part # 040-0012-02), and perform the steps in Sections 2.4, 2.5, and 2.7.1 of that document.
2. Perform the steps in the Sections 4 and 5 below.
3. Refer to *Conversion Kit Instructions*, and perform the steps from Section 2.7.3 to the end of that document.
4. Refer to Sections 6—8 below for useful information about your EGA or CGA system.

4. Remove the Game PCB and Install New Hardware

Note: The steps in this section take the place of the steps in "2.7.2 Remove the Game PCB and Install New Hardware," in *Conversion Kit Instructions*, Part # 040-0012-02.

Caution: Power must be off when connecting boards. To prevent damage from electrostatic discharge (ESD), handle PCBs by the edges only and use a grounding wrist strap or similar precaution.

1. The Conversion Kit hardware uses the existing Jamma harness wiring for speakers, video (for existing monitor), and coin inputs. Remove the Game PCB and any other hardware from the old game, but keep the existing DC power supply and Jamma harness wiring in place.



2. Install four small plastic feet from the kit on the Jamma conversion board and UVC.
3. Set jumper J8 on the Jamma conversion board to pins 1 and 2 for stereo, or pins 1 and 3 for mono audio, depending on how your cabinet audio is set up.
4. Place the boards next to each other in the service tray where you removed the old boards. Make sure that the Jamma connector on the Jamma wire harness can reach the Jamma Conversion Board before securing the boards to the cabinet.
5. Secure the boards with wood screws in the plastic feet.

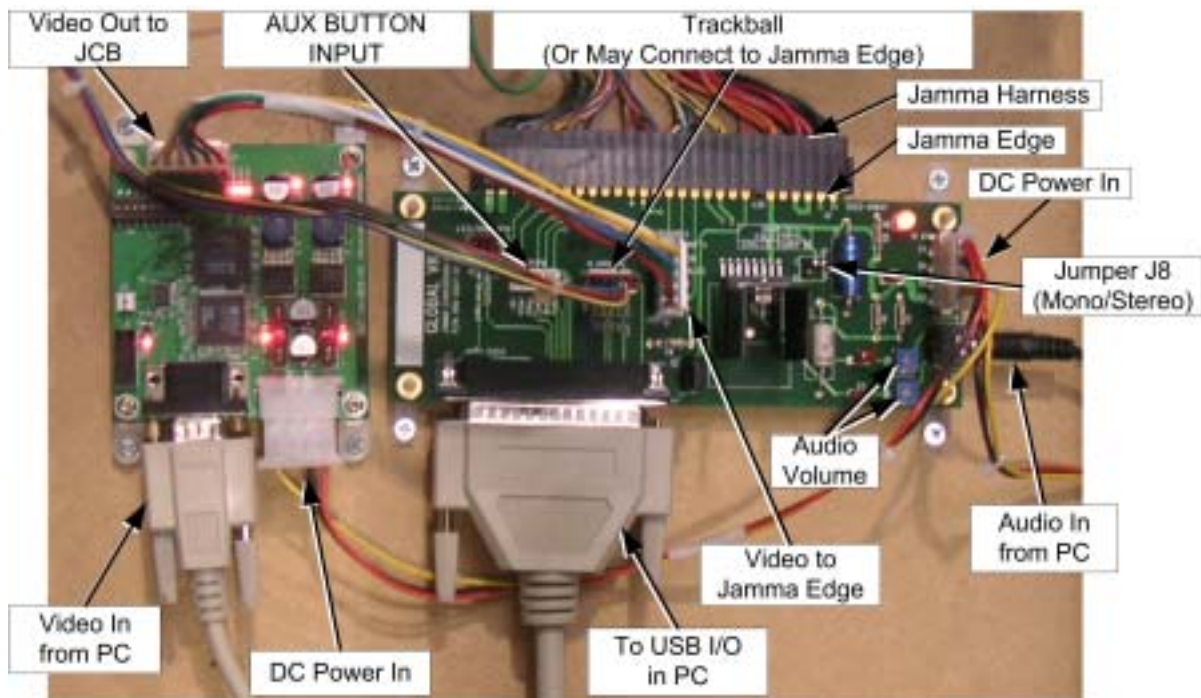


Figure 1. Jamma Conversion Board and UVC Connections

Refer to the figure above, and Figure 2, Simplified Wiring Diagram, on page 6, and perform the following steps to connect the Jamma harness wiring and other cables to the Jamma Conversion Board:

1. Connect the Jamma connector from the Jamma harness to the Jamma edge on the Jamma Conversion Board.
2. Connect the Video Input, J4 on the Jamma Conversion Board, to the Video Output, J7 on the UVC, using cable part #: 115-0018-01.
3. Connect the Trackball 6-pin connector to Trackball In, **J5** on the Jamma Conversion Board.

4. Connect the existing PC power supply in the cabinet to the Jamma Conversion Board PWR IN port using the PC Y-power cable from the kit.

Note: The PC Y-power cable uses a standard PC power supply connection found on most DC power supplies used in arcade cabinets. If your existing power supply does not have this type of connector, you will need to splice the Y-Power cable into the power supply on the cabinet. Here are the specifications for the PC Y-power cable:

- a. **Red Wire** +5 VDC
- b. **Yellow Wire** +12 VDC
- c. **Black Wire** Ground

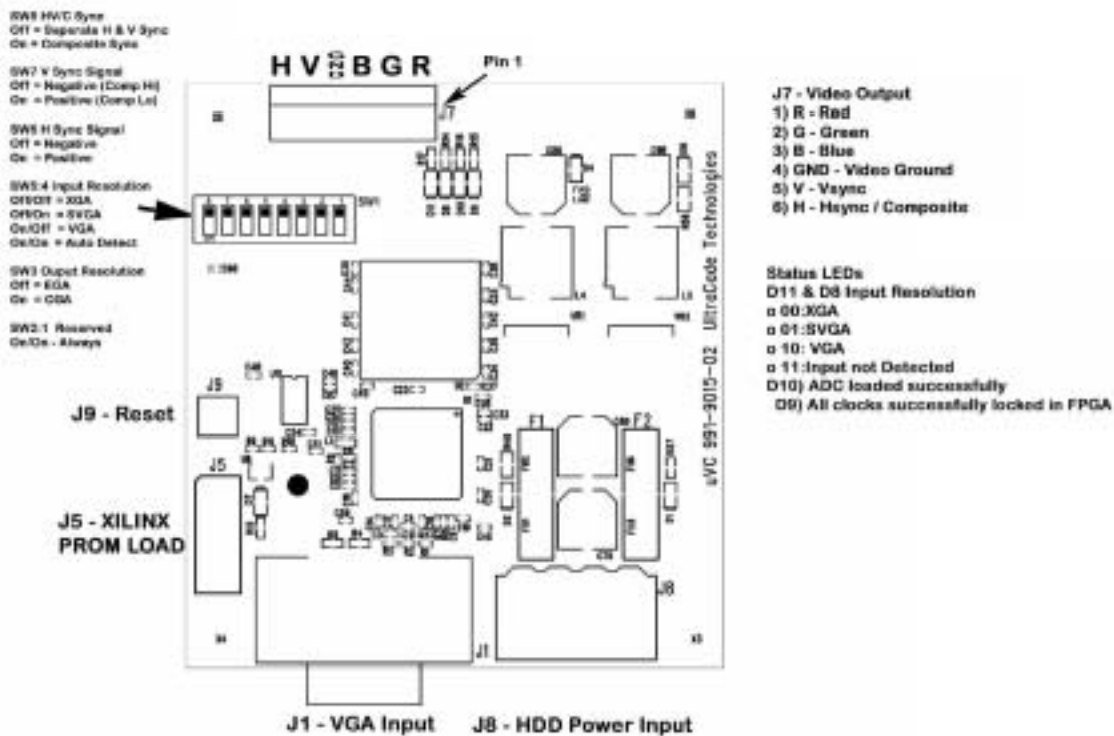
5. Complete the conversion as described in the *Conversion Kit Instructions* document, Part # 040-0012-02.

5. Rewire the AC Isolation Transformer (as Applicable)

Some cabinets with CGA monitors have an AC Isolation Transformer that is used to power the monitor. These may be bulky and heavy, taking up most of the space on the bottom of the cabinet. If you connect this type of monitor directly to AC power, you will damage the monitor chassis; therefore you must also keep the AC Isolation Transformer.

1. Find the AC power lines that power the AC Isolation Transformer.
2. Splice the power lines to an AC power cord (not provided in the kit).
3. Connect this power cord to the AC power strip that you installed previously. Reposition the AC Isolation Transformer as necessary to make room for the new computer.

6. Adjust the Universal Video Converter (UVC)



The Universal Video Converter (UVC) is designed to work with most EGA and CGA arcade monitors. When you power the cabinet up for the first time, you may need to adjust the settings on the UVC board to match the monitor. To correctly setup the UVC, you must know the resolution and Horizontal and Vertical Sync setup of the monitor.

Depending on your cabinet, the **J7** video output of the UVC can be connected directly to the video input on the monitor, or to **J4** on the Jamma Conversion Board to route the signals through the Jamma harness to the monitor.

Table 1. UVC DIP Switch Settings

SW 1 & 2	Both normally ON .
SW 3 Output Resolution	ON : CGA = 640 x 200 @ 15.72 KHz OFF : EGA = 640 x 384 @ 24.5 KHz
SW 4 and 5 Input Resolution	Both normally ON to auto detect the video resolution.
SW 6 H Sync Signal	Normally ON . Changing the H Sync signal will move the entire picture left or right. Change this setting if you find the picture is too far to one side and you cannot adjust it using the monitor control panel.
SW 7 V Sync Signal	Normally ON . Changing the V Sync signal will move the entire image up or down. Change this setting if you find the image is too far up or down on the monitor, and you cannot adjust it using the monitor remote control panel.
SW 8 H-V / Composite Sync	ON : Composite sync, for monitors with one composite (combined) sync line (most CGA monitors). OFF : For monitors with two separate H and V sync lines (most EGA monitors). Change this setting only if you have no picture on your monitor.

7. Troubleshooting

Problem	Possible Cause	Possible Solution
No Picture on Monitor	Power Problem	Verify the AC power connection to the monitor. You can verify the monitor has power by looking for a small glow in the Neck of the CRT. Verify the Universal Video Converter has power; the red LEDs should be illuminated.
	Blown fuse on UVC	Check fuses on UVC. Replace with 5 A fuses if blown.
	Faulty Video Cable	Verify that the video wires in the Jamma harness are firmly connected from the monitor to the Jamma Conversion Board. Verify the Universal Video Converter output is plugged into the Video Input on the Jamma Conversion Board.
	Faulty Monitor Chassis PCB	Verify that the fuses on the chassis PCB are good.
	Picture is Dim or Faded	Use the monitor remote control panel to adjust the brightness and contrast settings to see if this corrects the problem.
Picture is Misaligned or Color is Poor	Incorrect UVC Settings	Check the SW1 switch bank settings on the UVC and make sure they are correctly set for your monitor.
	Picture is out of Color	Use the monitor remote control panel to adjust the red, green, and blue color settings to see if this corrects the problem.
	Picture Geometry is Misaligned	Use the monitor remote control panel to adjust the height and width as well as other geometric adjustments to see if this corrects the problem.
	Distorted Colors on Screen	Use a degaussing coil on the monitor to see if this corrects the color problem.

8. Wiring Diagrams

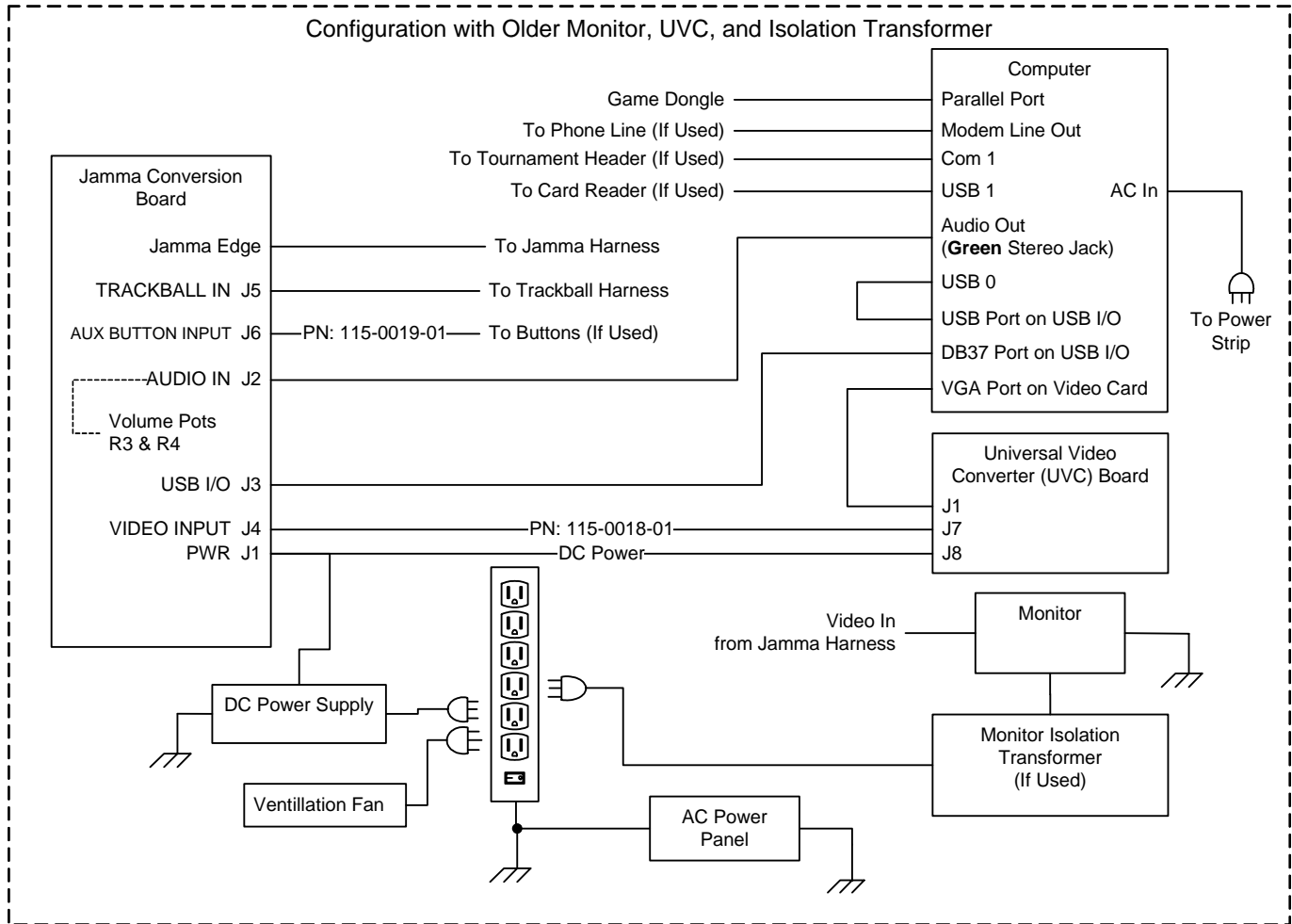


Figure 2. Simplified Wiring Diagram

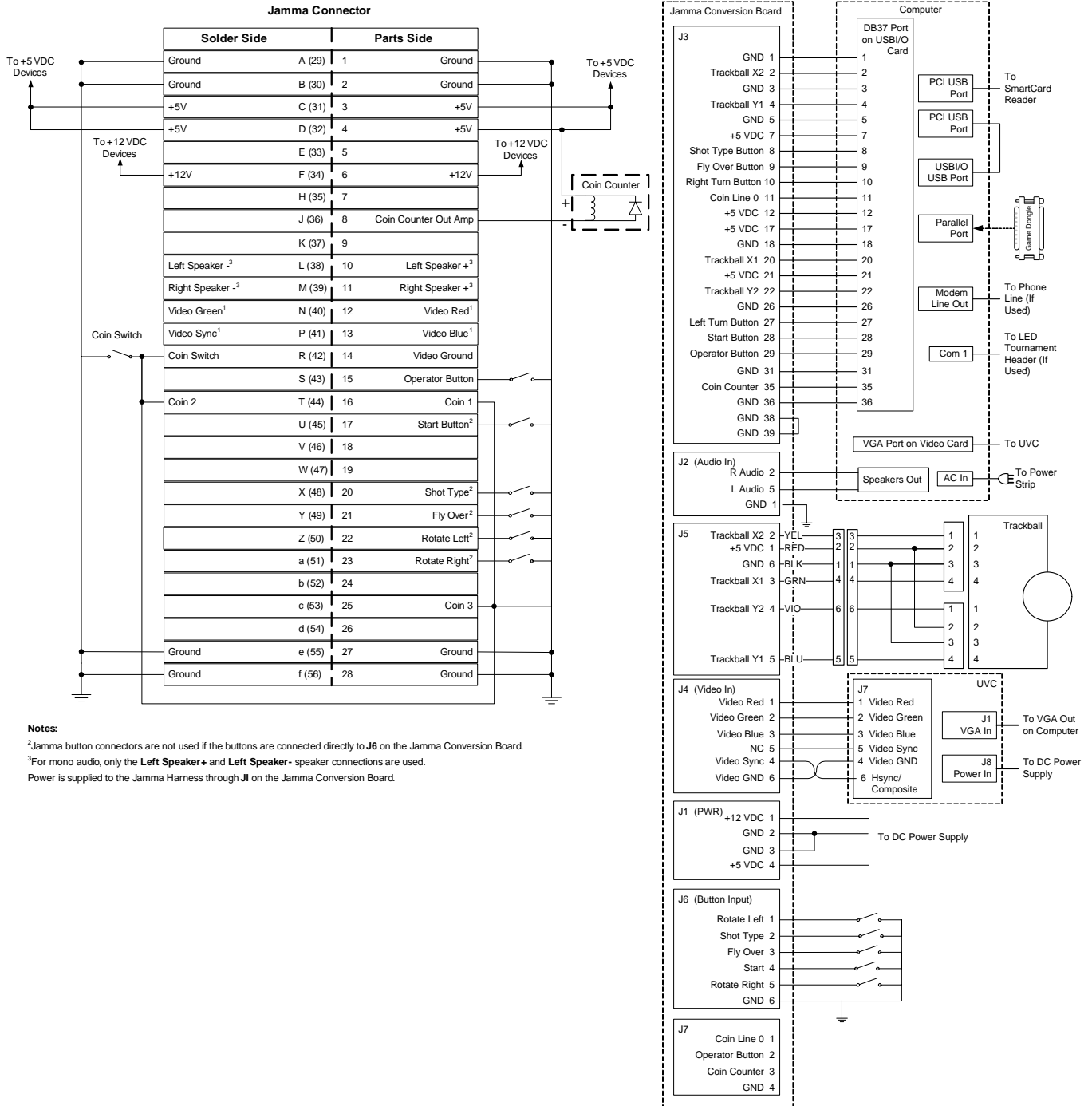


Figure 3. Detailed Wiring Diagram